seatback or armrest display. The keyboard may either be projected by laser, facilitating easy user selection based on native language or region, using electronic perception technology described above; or printed on the tray table or a placemat, using conventional optical recognition technology to track finger motion and key positions. Since the tray table slides and tilts relative to the seatback, one or more registration marks on the tray table may be employed to allow the system to position or track the keyboard.

[0251] **FIG. 7** is a schematic view showing a muscle-sensing keyboard for use in connection with the invention herein disclosed. Muscle-sensing keyboards, such as the Senseboard® virtual keyboard (see, for example, http://www.senseboard.com/), typically consist of a pair of hand modules **71** with a pad that is placed in the palm of the user's hand. A muscle-sensing keyboard enables a user to type without the physical limitations of a standard keyboard. This type of virtual keyboard typically uses sensor technology and artificial intelligence, such as pattern recognition, to recognize the characters that a user is typing. The keyboard detects the movements of the fingers and relates them to how a touch typist would use, for example, a standard QWERTY keyboard. The information thus generated is then transferred to, for example, a mobile device, such as a personal digital assistant (PDA) or a smart phone using, for example, a cable or a Bluetooth wireless connection.

[0252] Yet another virtual keyboard is the fabric keyboard (see, for example, http://www.electrotextiles.com/). Such keyboards provide three axes (X, Y and Z) of detection within a textile fabric structure approximately 1 mm thick. The technology is a combination of a fabric sensor and electronic and software systems. The resulting fabric interface delivers data according to the requirements of the application to which it is put. The three modes of sensor operation include position sensing (X-Y positioning), pressure measurement (Z sensing), and switch arrays. Thus, a keyboard can be constructed that detects the position of a point of pressure, such as a finger press, using the interface's X-Y positioning capabilities. The system works even if the fabric is folded, draped, or stretched. A single fabric switch can be used to provide switch matrix functionality. Interpreting software is used to identify the location of switch areas in any configuration, for example to implement keyboard functionality.

[0253] **FIG. 8** is a schematic view showing an eye-tracking keyboard for use in connection with the invention herein disclosed. In such systems, a user's eye movements **80** are tracked by a tracking device **82** and choices, as determined by a system **83** operating in accordance with the herein disclosed invention, are displayed on a monitor **81**.

[0254] While the preferred embodiment of the invention has been illustrated and described, it will be appreciated that various changes can be made therein without departing from the spirit and scope of the invention. For example, those skilled in the art will appreciate that the keyboard **105** and its auto-correcting region **106** may be configured in various ways, and may have a varying number of explicit function keys **108-122**. The auto-correction technique disclosed herein is equally applicable to keyboards of different sizes, and to traditional mechanical keyboards of various sizes as well as touch-panel and touch-screen based keyboards as well as various other types of virtual keyboards. The specific format of the word choice list **150**, such as the number of word choices presented, the arrangement of the word choices, and the functions associated with different areas of the word choice list may be changed. For example, those skilled in the art will appreciate that the function that consists of replacing the input sequence with a new set of x/y locations of the word selected could be omitted in certain applications. Furthermore, the specific algorithms used in promoting and demoting words within the vocabulary modules could also be altered. For example, a selected word could be promoted by moving it ½ of the distance to the head of its list rather than the factor of 6 used in the preferred embodiment described above.

[0255] Further, the virtual keyboard may also comprise an output device, such as a television, heads-up display; or retinal projection system, and thereby provide a display/keyboard presentation, such as shown in **FIG. 1*a*-1*b***. Further, the invention may comprise a virtual keyboard incorporated into a smart surface such as that comprised of an image projected therein and a camera, ultrasound or other device detecting user interaction therein. Further, the user interaction may comprise any gesture or other movement expressive of the user's intent, such as hand or finger movements, movements of other body parts, eye movements, brainwave detection, and the like. In that way, the virtual keyboard comprises any device suited for the special needs of people with disabilities. Further, the invention may be applied to the composition of phrases or parts of phrases in addition to, or instead of, characters and such objects. Accordingly, the invention should only be limited by the Claims included below.

1. A text entry system comprising:

a user input device comprising:

an auto-correcting keyboard region comprising a plurality of the characters of a character set, wherein locations having known coordinates in the auto-correcting keyboard region are associated with one or more of the character set members, wherein a location is determined when a user interacts with the user input device within the auto-correcting keyboard region and the determined interaction location is added to a current input sequence; and

one or more additional interaction locations associated with one or more characters of said character set, wherein a character set member is determined when a user interacts with one of said locations and a representation of the determined character set member is added to said current input sequence,

memory containing a plurality of objects, wherein one or more objects comprise a string of one or a plurality of characters forming all or part of a word or phrase;

an output device and

a processor coupled to the user input device, memory, and output device, said processor comprising:

a distance value calculation component which, for a determined interaction location in said current input sequence, calculates a set of distance values between the interaction location and the known coordinate locations corresponding to one or a plurality of characters within the auto-correcting region;